

WHAT IS CLAIMED IS:

1. A system comprising:

a processor capable of running virtual machines, the processor having at least two modes of operation, wherein a first processor mode is to run a virtual machine;

memory operatively coupled to the processor, the memory storing a virtual management control structure (VMCS) to define authorized access to system resources;

a monitor to run in a second processor mode; and

means for automatically switching from the first processor mode to the second processor mode based on an attempted access of system resources defined in the VMCS.
2. The system as recited in claim 1, wherein the first processor mode is Virtual Machine Extension (VMX) mode.
3. The system as recited in claim 1, wherein the monitor is a runtime services monitor (RSM) to execute a runtime service on behalf of a virtual machine, the virtual machine to run in the first processor mode, wherein the RSM is to place results of the runtime service execution in a shared memory location accessible by the virtual machine.
4. The system as recited in claim 1, wherein the processor is to run more than one virtual machine.
5. The system as recited in claim 4, wherein the processor is capable of running a first virtual machine simultaneously with a second virtual machine where the virtual machines use different operating systems.

6. The system as recited in claim 1, wherein the monitor is to access at least one of data and instructions to be protected from the virtual machine.

7. A system for protecting system resources, comprising:
a processor having at least two modes of operation, wherein a first processor mode is to run a virtual machine and a second processor mode is to run a monitor;
a monitor to run in the second processor mode, wherein the monitor is to access system resources not deemed accessible by the virtual machine; and
at least one system resource, wherein an attempt to access at least one system resource by a virtual machine automatically switches the processor mode of operation from the first processor mode to the second processor mode and switches execution control to the monitor.

8. The system as recited in claim 7, wherein the at least one system resource corresponds to a runtime service, wherein the runtime service comprises at least one item selected from the group consisting of code and data.

9. The system as recited in claim 8, wherein the system resource comprises an address of a function pointer, wherein the function pointer points to the corresponding runtime service.

10. A method for protecting runtime services, comprising:
attempting access to a system resource by an operating system, wherein the operating system runs in virtual machine execution mode on a processor;
automatically switching the processor mode to monitor mode from virtual machine execution mode, in response to the attempted access;
accessing the system resource by the monitor; and

switching the processor mode back to virtual machine execution mode from monitor mode.

11. The method as recited in claim 10, wherein the system resource corresponds to a runtime service, and wherein the runtime service comprises at least one item selected from the group consisting of code and data.

12. The method as recited in claim 11, wherein the system resource comprises an address of a function pointer, wherein the function pointer points to the corresponding runtime service.

13. The method as recited in claim 11, further comprising:
executing the runtime service by the monitor; and
storing results of the runtime service in a shared storage location accessible by the operating system.

14. The method as recited in claim 11, wherein the operating system executes in a virtual machine.

15. The method as recited in claim 14, wherein more than one virtual machine is executing simultaneously on the processor.

16. The method as recited in claim 15, wherein the monitor is a virtual machine monitor having a runtime services monitor component.

17. A machine accessible medium having instructions that when executed result in the performance of the following:

attempting access to a system resource by an operating system, wherein the operating system runs in virtual machine execution mode on a processor;

automatically switching the processor mode to monitor mode from virtual machine execution mode, in response to the attempted access;
accessing the system resource by the monitor; and
switching the processor mode to virtual machine execution mode from monitor mode.

18. The machine accessible medium as recited in claim 17, wherein the system resource corresponds to a runtime service, and wherein the runtime service comprises at least one item selected from the group consisting of code and data.

19. The machine accessible medium recited in claim 18, wherein executing the instructions further performs:
executing the runtime service by the monitor; and
storing results of the runtime service in a shared storage location accessible by the operating system.

20. The machine accessible medium recited in claim 17, wherein the operating system is a virtual machine.

21. The machine accessible medium recited in claim 20, wherein more than one virtual machine is executing simultaneously on the processor.

22. The machine accessible medium recited in claim 21, wherein the monitor is a virtual machine monitor having a runtime services monitor component.